

## PATENT COOPERATION TREATY

## PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P26278PC00/MVM	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/NL 03/00489	International filing date (day/month/year) 18.06.2003	Priority date (day/month/year) 18.06.2002
International Patent Classification (IPC) or both national classification and IPC B05B11/00		
Applicant AIRSPRAY INTERNATIONAL B.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
  
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
 

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 10 sheets.
  
3. This report contains indications relating to the following items:
  - I     Basis of the opinion
  - II    Priority
  - III    Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV    Lack of unity of invention
  - V    Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI    Certain documents cited
  - VII    Certain defects in the international application
  - VIII    Certain observations on the international application

Date of submission of the demand  16.01.2004	Date of completion of this report  29.10.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Eberwein, M Telephone No. +49 89 2399-7260



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/NL 03/00489

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-21 as originally filed

**Claims, Numbers**

1-55 received on 20.09.2004 with letter of 20.09.2004

**Drawings, Sheets**

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

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5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

the entire international application,

claims Nos. 27-51

because:

the said international application, or the said claims Nos. 27-51 relate to the following subject matter which does not require an international preliminary examination (specify):

**see separate sheet**

the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

no international search report has been established for the said claims Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

the written form has not been furnished or does not comply with the Standard.

the computer readable form has not been furnished or does not comply with the Standard.

**IV. Lack of unity of invention**

1. In response to the invitation to restrict or pay additional fees, the applicant has:

restricted the claims.

paid additional fees.

paid additional fees under protest.

neither restricted nor paid additional fees.

2.  This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

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- complied with.
- not complied with for the following reasons:
  - 4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:
    - all parts.
    - the parts relating to claims Nos. .

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1,3,21
Inventive step (IS)	Yes:	Claims	
	No:	Claims	2,4-8,12,13,16,17,19,21,23,25,26,52-55
Industrial applicability (IA)	Yes:	Claims	1-26,52-55
	No:	Claims	

2. Citations and explanations

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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**Non-establishment of opinion (Item III)**

1. As already mentioned in the International Search Report of 22.10.2003, the International Searching Authority found multiple inventions in the present application. No additional fees were paid by the applicant. Consequently the examination will only be based on the claims 1-26 and the new filed claims 52-55.

**Novelty, inventive step, and industrial applicability (Item V)**

**Claims 1,3 and 21**

1. From US5351862 (D1) there is a dispensing unit for dispensing two fluid substances known, comprising:
  - a pump assembly having a first pump and a second pump, which can be actuated by common, manually operable operating means so that they simultaneously dispense the two fluid substances, and
  - a reservoir assembly for holding the two fluid substances, the reservoir assembly comprising two reservoirs, which are each provided with an outlet at an outlet side and are each delimited by a moveable piston on the side remote from the outlet, which pistons move towards the respective outlets during the dispensing of the fluid substances, wherein the reservoir and the pump assembly are separate assemblies which can be coupled to one another, in such manner that in the uncoupled state each reservoir can be filled through the outlet of the reservoir, after which the pump assembly and the reservoir assembly are coupled to one another.
2. Also the subject-matter of claims 3 and 21 is known from (D1).
3. Thus, it appears that the subject-matter of claims 1, 3 and 21 is not new as required by Article 33(2) PCT.

**Claims 2, 4-8, 12 ,13 ,16 ,17 ,19 ,21 ,23 ,25, 26 and 52-55**

4. The features of claims 2, 4-8, 12 , 13, 16, 17, 19, 21, 23, 25, 26 and 52-55 do not seem to constitute a difference which could lead to subject-matter involving an inventive step according to Article 33(3) PCT.

20.09.2004

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## CLAIMS

(81)  
10/518661

DT01 Rec'd PCT/PTC 17 DEC 2004

1. Dispensing unit (1) for dispensing two fluid substances, comprising:
  - a pump assembly (2) having a first pump (4) and a second pump (5), which can be actuated by common, manually operable operating means (6) so that they simultaneously dispense the two fluid substances, and
  - a reservoir assembly (3) for holding the two fluid substances,the reservoir assembly (3) comprising two reservoirs (8, 9), which are each provided with an outlet (12, 15) at an outlet side and are each delimited by a movable piston (13, 16) on the side remote from the outlet, which pistons (13, 16) move towards the respective outlets (12, 15) during the dispensing of the fluid substances, characterized in that the reservoir assembly (3) and the pump assembly (2) are separate assemblies which can be coupled to one another, in such a manner that in the uncoupled state each reservoir (8, 9) can be filled through the outlet (12, 15) of the reservoir (8, 9), after which the pump assembly (2) and the reservoir assembly (3) are coupled to one another.
2. Dispensing unit according to claim 1, characterized in that each piston prior to filling of the respective reservoir is located in a filling position close to the outlet.
3. Dispensing unit according to claim 1 or 2, characterized in that a first reservoir is delimited by an inner side of a first substantially cylindrical tube, the reservoir being delimited, on the side remote from the outlet side, by a continuous, substantially disk-like piston.
4. Dispensing unit according to one or more of claims 1-3, characterized in that a second reservoir is delimited by the outer side of the first cylindrical tube and an inner side of a second substantially cylindrical tube, which surrounds the first cylindrical tube, the reservoir being

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delimited, on the other side from the outlet side, by a continuous, substantially annular piston.

5. Dispensing unit according to one or more of claims 1-4, characterized in that the diameter or cross section of the first and/or second reservoir decreases in the direction of the outlet side over at least a section of the length of the reservoir.
6. Dispensing unit according to claim 5, characterized in that the diameter of the inner side of the first cylindrical tube decreases in the direction of the outlet side.
7. Dispensing unit according to claim 5 or 6, characterized in that the distance between the outer side of the first cylindrical tube and the inner side of the second cylindrical tube decreases in the direction of the outlet side.
8. Dispensing unit according to one or more of claims 5-7, characterized in that the diameter of the inner side of the second cylindrical tube decreases in the direction of the outlet side, the outer side of the first cylindrical tube being straight.
9. Dispensing unit according to one or more of claims 1-8, characterized in that the diameter or cross section of the first and/or second reservoir is increased at the abovementioned filling position in the vicinity of the outlet, in such a manner that the piston is under a reduced prestress in the abovementioned filling position in the vicinity of the outlet.
10. Dispensing unit according to claim 9, characterized in that the diameter of the inner side of the first cylindrical tube, at the location of the piston position in the vicinity of the outlet, substantially corresponds to the diameter of the substantially disk-like piston.

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11. Dispensing unit according to claim 9 or 10, characterized in that the distance between the outer side of the first cylindrical tube and the inner side of the second cylindrical tube, at the location of the piston position in the vicinity of the outlet, substantially corresponds to the width of the ring of the substantially annular piston.
12. Dispensing unit according to one or more of claims 1-11, characterized in that the reservoir assembly comprises a cover which closes off the reservoirs on the outlet side, the first and second outlets being arranged in the cover.
13. Dispensing unit according to claim 12, characterized in that the cover is formed integrally with the second cylindrical tube.
14. Dispensing unit according to claim 12 or 13, characterized in that the cover comprises a coupling rim for coupling a pump assembly to it in order to form a dispensing unit.
15. Dispensing unit according to one or more of claims 12-14, characterized in that the cover is designed to receive a filling head for filling the first and second reservoirs.
16. Dispensing unit according to one or more claims 1-15, characterized in that the reservoir assembly further comprises a connecting element which connects the first and second cylindrical tubes to one another in the vicinity of the ends of the first and second cylindrical tubes which are remote from the outlet side.
17. Dispensing unit according to claim 16, characterized in that the connecting element is formed integrally with the first cylindrical tube.
18. Dispensing unit according to one or more of claims 12-17, characterized in that the cover is connected to the first and/or second cylindrical tube by means of a click-fit connection.

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19. Dispensing unit according to one or more claims 12-18, characterized in that the connecting element is connected to the first and/or second cylindrical tube by means of a click-fit connection.
20. Reservoir assembly clearly intended for a dispensing unit according to one or more of claims 1-19.
21. Method for assembling and filling a reservoir assembly of a dispensing unit according to one or more of claims 1-19, which method is characterized by the following steps:
  - the assembling of the reservoir assembly,
  - the placing of a filling head of a filling unit which is suitable for filling the two reservoirs onto the reservoir assembly,
  - the filling of the first and second reservoirs, during which step the first and second reservoirs are filled through the first and second outlets, respectively, and
  - the removal of the filling head.
22. Method according to claim 21, characterized in that each piston, after the reservoir assembly has been assembled, is located in the abovementioned piston position in the vicinity of the outlet, the pistons moving from the piston position in the vicinity of the outlet towards the piston position of a completely filled reservoir during the filling operation.
23. Method according to claim 21 or 22, characterized in that prior to filling of the first and/or second reservoir, the air which is present in the first and/or second reservoir, respectively, is at least partially sucked out by means of the filling unit.
24. Method according to claim 22 or 23, characterized in that the first and second reservoirs are filled simultaneously.
25. Filling unit for filling a reservoir assembly according to

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- claim 20, characterized in that the filling unit comprises a filling head which is suitable for placing onto the reservoir assembly and comprises at least two plunger pumps for filling the first and second reservoirs.
26. Filling unit according to claim 24, characterized in that the filling unit also comprises a third pump, in particular a plunger pump, for sucking out the air which is present in the reservoirs prior to filling the first and second reservoirs.
27. Dispensing unit for dispensing a first and a second fluid substance in a defined (volumetric) ratio, comprising:  
- a first and a second reservoir for a stock of the first and second fluid substances, respectively,  
- a pump assembly, which comprises a first and a second pump which each have a pump chamber with a defined operative volume, and a common, manually operable operating member for actuating the first and second pumps,  
characterized in that the pump assembly comprises one or more exchangeable pump elements which form at least part of the first and/or second pump, so that the operative volume of the pump chamber of the first and/or second pump can be adjusted by selection of one or more suitable exchangeable pump elements and fitting of these elements in the pump assembly.
28. Dispensing unit according to claim 27 and one or more of claims 1-19.
29. Dispensing unit according to claim 27 or 28, characterized in that the pump assembly also comprises a base part with a holding section for holding at least one of the exchangeable pump elements.
30. Dispensing unit according to claim 29, in which the holding section is designed to centre and/or position the at least one exchangeable pump element.

31. Dispensing unit according to one or more of claims 27-30, characterized in that the pump assembly comprises a first exchangeable pump element which is held in the base part and is coupled to the actuating member.
32. Dispensing unit according to claim 31, characterized in that the first and/or second pump is a bellows pump, the first exchangeable pump element at least partially forming a bellows pump chamber.
33. Dispensing unit according to one or more of claims 27-30, characterized in that the pump assembly comprises a first and a second exchangeable pump element, the first exchangeable pump element being coupled to the operating member and the second exchangeable pump element being held in the base part.
34. Dispensing unit according to claim 33, characterized in that the first and/or second pump is a piston pump, the first exchangeable pump element forming the piston of the first or second pump and the second exchangeable pump element forming the cylinder of the first or second pump.
35. Dispensing unit according to claim 34, characterized in that each pump is a piston pump, and in that the first exchangeable pump element forms both pistons and the second exchangeable pump element forms both cylinders.
36. Dispensing unit according to claim 34 or 35, characterized in that the first exchangeable pump element comprises a base surface, on which two cylindrical walls are arranged substantially at a right angle in order to form the pistons, and in that the second exchangeable pump element comprises a base plate on which two cylindrical walls are arranged substantially at a right angle in order to form the cylinders.
37. Dispensing unit according to one or more of claims 27-36,

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- characterized in that the pump assembly is removably coupled to the first and/or second reservoir.
38. Dispensing unit according to one or more of claims 27-37, characterized in that the base part is provided with coupling means for optionally releasably coupling the pump assembly to the first and/or second reservoir.
39. Dispensing unit according to one or more of claims 27-38, characterized in that the first reservoir and the second reservoir are formed as a single entity.
40. Dispensing unit according to one or more of claims 27-39, characterized in that the first and second pumps are designed coaxially, in particular concentrically.
41. Dispensing unit according to one or more of claims 27-40, characterized in that the reservoirs are designed coaxially, in particular concentrically.
42. Dispensing unit according to one or more of claims 27-41, characterized in that the first and second reservoirs are of the "airless" type.
43. Dispensing unit for dispensing one fluid substance, comprising:  
- at least one reservoir for a stock of fluid substance,  
- a pump assembly having at least one pump which has a pump chamber with a defined operative volume, and an easy-to-operate operating means for actuating the at least one pump,  
characterized in that the pump assembly comprises one or more exchangeable pump elements which form at least a section of the pump, so that the operative volume of the pump chamber of the pump can be adapted by selecting one or more suitable exchangeable pump elements and by fitting them in the pump assembly.
44. Dispensing unit according to claim 43, characterized in

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that the pump assembly also comprises a base part having a holding section for holding at least one of the exchangeable pump elements.

45. Dispensing unit according to claim 44, in which the holding part is designed to centre and/or position the first exchangeable pump element.
46. Dispensing unit according to one or more of claims 43-45, characterized in that the pump assembly comprises a first exchangeable pump element which is held in the base part and is coupled to the actuating member.
47. Dispensing unit according to claim 46, characterized in that the pump is a bellows pump, the first exchangeable pump element forming a bellows pump chamber.
48. Dispensing unit according to one or more of claims 43-45, characterized in that the pump assembly comprises a first and a second exchangeable pump element, the first exchangeable pump element being coupled to the operating member and the second exchangeable pump element being held in the base part.
49. Dispensing unit according to claim 48, characterized in that the pump is a piston pump, the first exchangeable pump element forming the piston of the pump and the second exchangeable pump element forming the cylinder of the pump.
50. Pump assembly clearly intended for a dispensing unit according to one or more of claims 27-49.
51. Method for the production of a dispensing unit according to one or more of claims 27-49, in which one or more suitable exchangeable pump elements are selected from a stock of different exchangeable pump elements as a function of the desired operative volume of the pump chamber of the first and/or second pump and are fitted in the pump assembly.

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52. Method for filling a reservoir assembly (3) of a dispensing unit (1) for dispensing two fluid substances, said dispensing unit comprising:

- a pump assembly (2) having a first pump (4) and a second pump (5), which can be actuated by common, manually operable operating means (6) so that they simultaneously dispense the two fluid substances, and

- a reservoir assembly (3) for holding the two fluid substances,

the reservoir assembly (3) comprising two reservoirs (8, 9), which are each provided with an outlet (12, 15) at an outlet side and are each delimited by a movable piston (13, 16) on the side remote from the outlet, which pistons (13, 16) move towards the respective outlets during the dispensing of the fluid substances, characterized in that the reservoir assembly (3) and the pump assembly (2) are separate assemblies which can be coupled to one another, and that the method comprises the steps of:

- filling in the uncoupled state each reservoir (8, 9) through the outlet of the reservoir, and subsequently

- coupling the pump assembly (2) and the reservoir assembly (3) to one another.

53. Method according to claim 52, characterized by filling the two reservoirs (8, 9) simultaneously.

54. Dispensing unit (1) for dispensing two fluid substances, comprising:

- a pump assembly (2) having a first pump (4) and a second pump (5), which can be actuated by a common, manually operable operating means (6) so that they simultaneously dispense the two fluid substances, and

- a reservoir assembly (3) for holding the two fluid substances,

the reservoir assembly (3) comprising two reservoirs (8, 9), which are each provided with an outlet (12, 15) at an outlet side and are each delimited by a movable piston (13,

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- 16) on the side remote from the outlet, which pistons (13, 16) move towards the respective outlets (12, 15) during the dispensing of the fluid substances, characterized in that the reservoir assembly (3) and the pump assembly (2) are separate assemblies which can be coupled to one another, in such a manner that in the uncoupled state each reservoir (8, 9) can be filled through the outlet (12, 15) of the reservoir (8, 9), after which the pump assembly (2) and the reservoir assembly (3) are coupled to one another, and in that each piston (13, 16) prior to filling of the respective reservoir (8, 9) is located in a filling position close to the outlet (12, 15), the diameter or cross section of the first and/or second reservoir (8, 9) being increased at the abovementioned filling position in the vicinity of the outlet (12, 15), in such a manner that the piston (13, 16) is under a reduced prestress in the abovementioned filling position in the vicinity of the outlet (12, 15).
55. Reservoir assembly (3) for a dispensing unit for dispensing two fluid substances, comprising two reservoirs (8, 9), which are each provided with an outlet (12, 15) at an outlet side and are each delimited by a movable piston (13, 16) on the side remote from the outlet, which pistons (13, 16) move towards the respective outlets (12, 15) during the dispensing of the fluid substances, characterized in that each piston (13, 16) prior to filling of the respective reservoir (8, 9) is located in a filling position close to the outlet (12, 15), the diameter or cross section of the first and/or second reservoir (8, 9) being increased at the abovementioned filling position in the vicinity of the outlet (12, 15), in such a manner that the piston (13, 16) is under a reduced prestress in the abovementioned filling position in the vicinity of the outlet (12, 15).